HW 4

Due Friday, February 16

Exercises: 3.5.1, (3.5.3), 3.6.1, (3.6.2), (4.1.1), (4.1.2), (4.1.3), 4.1.4, 4.2.1, (4.2.2), (4.2.3), 4.2.4, (4.2.5), 4.3.1, 4.3.3.

(To pass this assignment, submit well-written, complete, correct solutions to at least **four** exercises from among the non-parenthesized numbers above.)

Sec 3.5.

3.5.1. An L-theory T is complete iff $\varphi \lor \psi \in T$ implies $\varphi \in T$ or $\psi \in T$.

(3.5.3) Find a formula defining the set of prime numbers in the standard model of Peano arithmetic.

Sec 3.6.

3.6.1. Prove that the set of L-sentences true in \emptyset_L is neither consistent nor deductively closed.

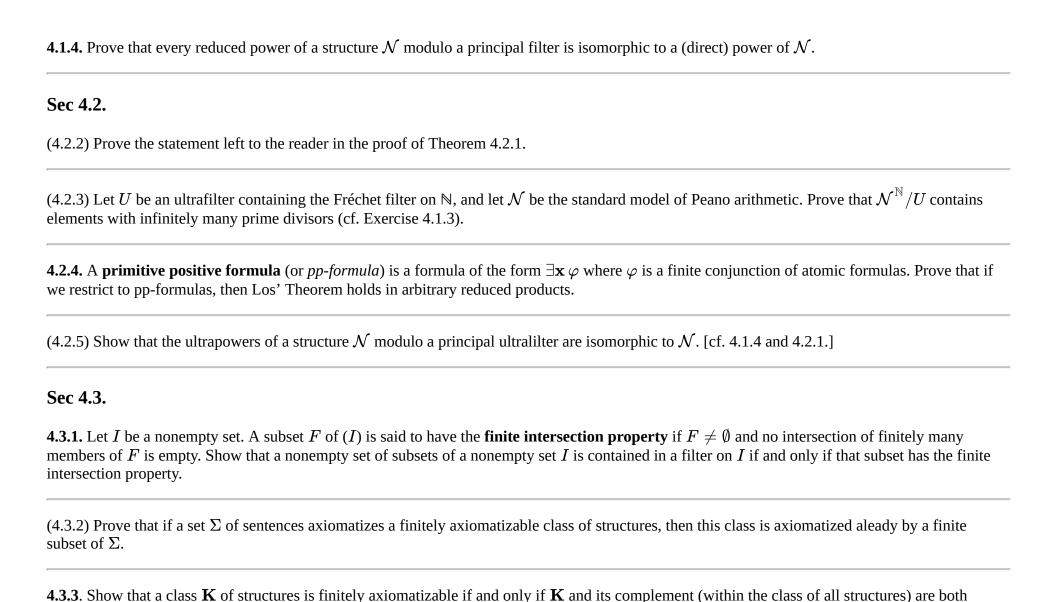
(3.6.2) Determine the set of L-sentences true in \emptyset_L precisely.

Sec 4.1.

(4.1.1) Verify that the definition of reduced product does not depend on the representatives chosen.

(4.1.2) Show that every structure is embeddable in each of its reduced powers.

(4.1.3) Let F be the Frechet filter on $\mathbb N$ and $\mathcal N$ the standard model of peano arithmetic. Prove that $\mathcal N^{\mathbb N}/F$ contains no prime divisors, hence the embedding from the previous exercise does not preserve prime divisors.



axiomatizable.